



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,371	09/25/2003	Pingfan Wu	128435-1	2370
41838	7590	06/14/2005	EXAMINER	
GENERAL ELECTRIC COMPANY (PCPI) C/O FLETCHER YODER P. O. BOX 692289 HOUSTON, TX 77269-2289			EVANS, FANNIE L	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H'A

**Office Action Summary**

Application No.

10/605,371

Applicant(s)

WU ET AL.

Examiner

F. L. Evans

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-24 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 25, 26 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 9-11, 27, 28, and 32-42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Allowable Subject Matter*

The indicated allowability of claims 8 and 31 is withdrawn in view of the newly discovered reference to Benicewicz et al (US 6,762,836 B2). Rejections based on the newly cited reference follow.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6, 7, 25, 26, 29 and 30 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by Zhang et al (US 6,762,835 B2), of record.

Zhang et al disclose an in-situ laser plasma spectroscopy apparatus, comprising : an enclosure (dotted lines in Fig. 1) for housing a laser energy source (1); a main fiber (4) connected to said enclosure at a first end of said main fiber (4), and connected to a probe (13) at a second end of said main fiber (4), said main fiber (4) configured for transmitting input laser energy from said laser energy source (1) to a target (30) and for transmitting laser induced plasma emission signals (column 5, lines 21-24) back from said target (30), and said probe having a single focal lens (10) for directing said input laser energy from said main fiber (4) to said target (30), and for directing said laser induced plasma emission signals (column 5, lines 21-24) from said target (30) to said main fiber (4). The enclosure further includes a beam splitter (3) for directing the input laser energy from said laser energy source (1) into the main fiber (4), the beam splitter (3) is further configured for directing said laser induced plasma emission signals from the main fiber (4) to a second fiber (5) in communication with the enclosure, wherein said second

Art Unit: 2877

fiber (5) is configured to transmit said laser induced plasma emission signals to a spectrometer device (12) for analysis of the laser induced plasma emission signals. The enclosure also includes a first lens (7) for focusing the input laser energy reflected from the beam splitter (3) into the main fiber (4) and a second lens (11) for focusing the laser induced plasma emission signals directed from the beam splitter (3) into the second fiber (5). An intensified charge-coupled device (ICCD) camera (16) is attached to the spectrometer device (12) and a computer (19) is in communication with the ICCD camera (16). In an embodiment of the invention of Zhang et al, the probe is movable with respect to the target (the target being different depths inside of molten Al alloy - lines 42-55 of column 8).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 1-3, 6-8, 25, 26 and 29-31 are rejected under 35 U.S.C. § 103(a) as being obvious over Benicewicz et al (US 6,762,836 B2), newly cited, in view of Zhang et al (US 6,762,835 B2), of record

The applied reference, Benicewicz et al, has a common inventor with the instant application.

Art Unit: 2877

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. § 102(e). This rejection under 35 U.S.C. § 103(a) might be overcome by: (1) a showing under 37 CFR § 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR § 1.131; or (3) an oath or declaration under 37 CFR § 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. § 104, together with a terminal disclaimer in accordance with 37 CFR § 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. § 103(c) as prior art in a rejection under 35 U.S.C. § 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Benicewicz et al disclose an in-situ laser plasma spectroscopy apparatus, comprising : a laser energy source (110); a main fiber (121) connected to an enclosure (120) at a first end of said main fiber (121), and connected to a probe (housing containing lens 125) at a second end of said main fiber (121), said main fiber (121) configured for transmitting input laser energy from said laser energy source (110) to a target (126) and for transmitting laser induced plasma emission signals (column 4, lines 29-31 and 45-47) back from said target (126), and said probe having a single focal lens (125) for directing said input laser energy from said main fiber (121) to said target (126), and for directing said laser induced plasma emission signals (column 4, lines 29-31 and 45-47) from said target (126) to said main fiber (121). The enclosure further includes a beam splitter (124) for directing the input laser energy from said laser energy source (110) into the main fiber (121), the beam splitter (124) is further configured for directing said laser induced plasma emission signals from the main fiber (121) to a second fiber (128) in communication with the enclosure, wherein said second fiber (121) is configured to transmit said laser induced plasma emission signals to a spectrometer device (130) for analysis of the laser induced plasma emission signals.

Art Unit: 2877

The enclosure also includes a first lens (123) for focusing the input laser energy reflected from the beam splitter (124) into the main fiber (121) and a second lens (127) for focusing the laser induced plasma emission signals directed from the beam splitter (124) into the second fiber (128). An intensified charge-coupled device (ICCD) camera (150) is attached to the spectrometer device (130) and a computer (190) is in communication with the ICCD camera (150). The probe is movable with respect to the target (column 4, lines 33-39). The probe comprises a stop at the end thereof, configured such that an exit end of the probe corresponds to a focal point of the single lens (column 4, lines 33-39). Benicewicz et al do not specifically set forth an enclosure for housing the laser energy source.

Zhang et al disclose an in-situ laser plasma spectroscopy apparatus, comprising an enclosure (dotted lines in Fig. 1) for housing a laser energy source (1).

At the time the invention was made, it would have been obvious to one with ordinary skill in the art to provide an enclosure for housing the laser energy source (1) of Benicewicz et al, shown to be conventional by Zhang et al, to preclude any inadvertent exposure of a user to Class IV laser light (column 4, lines 11-15 of Benicewicz et al).

#### *Additional Prior Art*

Rai et al (Spectrochimica Acta) disclose an in-situ laser plasma spectroscopy apparatus with a stop at the end of the probe to maintain the same sample-to-lens distant for every sample. Applicant's attention is directed to lines 7-11 of the first full paragraph on page 2375 of Rai et al.

#### *Allowable Subject Matter*

Claims 12-24 are allowed over the prior art of record.

Claims 4, 5, 9-11, 27, 28 and 32-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2877

*Response to Arguments*


Applicant's arguments filed May 27, 2005 have been fully considered but they are not persuasive with respect to claims 1-3, 6, 7, 25, 26, 29 and 30. Zhang et al disclose that the probe is movable with respect to the target, the target being different depths inside of molten Al alloy. Applicant's attention is directed to lines 42-55 of column 8 of Zhang et al. Additionally, applicant's arguments with respect to claims 1-3, 6-8, 25, 26 and 29-31 have been considered but are moot in view of the new grounds of rejection.

*Fax/Telephone Numbers*

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The fax number for Technology Center 2800 is (703) 872-9306 for regular and After Final communications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner whose telephone number is (571) 272-2414. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on (571) 272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**F. L. EVANS**  
**PRIMARY EXAMINER**  
**ART UNIT 2877**

fle

June 2, 2005